WHAT IS CLAIMED IS:

1. A video decoder, comprising:

input interface circuitry for receiving an input video signal;

separation circuitry, for separating the received input video signal into signal components;

output format circuitry for presenting an output signal to a video display; and

a first automatic gain control circuit, comprising:

a gain stage for amplifying a signal corresponding to the input video signal by a first gain value; and

gain update circuitry, for modifying the gain value responsive to a selected one of a plurality of signal attributes of the input video signal.

2. The video decoder of claim 1, wherein the plurality of signal attributes comprises:

at least one signal attribute that is dependent upon the content of an image to be displayed responsive to the input video signal; and

at least one signal attribute that is not dependent upon the content of the image to be displayed.

3. The video decoder of claim 2, wherein the plurality of signal attributes comprises:

at least one signal attribute selected from the group consisting of sync height, color burst amplitude, composite peak amplitude, and luma peak amplitude.

4. The video decoder of claim 1, wherein the input video signal includes a vertical blanking interval between frames of the input video signal;

wherein the gain update circuitry modifies the first gain value responsive to measurements of the plurality of signal attributes over a received frame of the input video signal.

5. The video decoder of claim 1, wherein the first automatic gain control circuit has an output coupled to an input of the separation circuitry.

6. The video decoder of claim 5, further comprising:

a second automatic gain control circuit, having at least one input coupled to a corresponding output of the separation circuit, and comprising:

at least one gain stage for amplifying a signal corresponding to the output of the separation circuitry by a second gain value; and

gain update circuitry, for modifying the second gain value responsive to a selected one of a plurality of signal attributes of the input video signal.

7. The video decoder of claim 6, wherein the plurality of signal attributes to which the gain update circuitry of the second automatic gain control circuit is responsive differs from the plurality of signal attributes to which the gain update circuitry of the first automatic gain control circuit is responsive.

8. The video decoder of claim 7, wherein the plurality of signal attributes, to which the gain update circuitry of the second automatic gain control circuit is responsive, comprises the selected one of the plurality of signal attributes to which the gain update circuitry of the first automatic gain control circuit modified the first gain value for a frame of the input video signal.

9. The video decoder of claim 8, wherein the selected one of the plurality of signal attributes, for each of the first and second automatic gain control circuits, corresponds to one of the plurality of signal attributes resulting in the lowest gain.

10. The video decoder of claim 9, wherein the second automatic gain control circuit excludes the selected one of the plurality of signal attributes for the first automatic gain control circuit from being its selected one of the plurality of signal attributes.

11. The video decoder of claim 9, wherein one of the plurality of signal attributes to which the gain update circuitry of the first automatic gain control circuit is responsive is a luma peak amplitude;

and wherein the second automatic gain control circuit modifies the second gain value to a default value responsive to the selected one of the plurality of signal attributes for the first automatic gain control circuit being the luma peak amplitude.

12. The video decoder of claim 1, wherein the gain update circuitry modifies the first gain value based on measurements of the plurality of signal attributes for each frame of the input video signal, by either increasing or decreasing the first gain value;

wherein the plurality of signal attributes comprises:

at least a first signal attribute that is dependent upon the content of an image to be displayed responsive to the input video signal; and

at least a second signal attribute that is not dependent upon the content of the image to be displayed;

wherein the gain update circuitry modifies the first gain value responsive to a gain update equation including a filter coefficient value, higher values of the filter coefficient value corresponding to greater changes in the first gain value;

wherein the gain update circuitry comprises a memory for storing an identity of an attribute causing a most recent decrease in the first gain value;

wherein the gain update circuitry increases the first gain value using a first filter coefficient value responsive to the identity of the attribute causing the most recent decrease in the first gain value being the second signal attribute;

and wherein the gain update circuitry increases the first gain value using a second filter coefficient value, lower in value than the first filter coefficient value, responsive to the identity of the attribute causing the most recent decrease in the first gain value being the first signal attribute.

13. The video decoder of claim 12, wherein the gain update circuitry delays increasing the first gain value for a selected number of frames responsive to the identity of the attribute causing the most recent decrease in the first gain value being the first signal attribute.

14. A method of controlling automatic gain control in a video decoder, comprising the steps of:

measuring a first plurality of signal attributes of an input video signal;

comparing each of the signal attribute measurements to a corresponding target value for the signal attribute;

selecting one of the first plurality of signal attributes responsive to the comparing step;

modifying a first gain value according to the selected signal attribute measurement.

15. The method of claim 14, wherein the first plurality of signal attributes comprises:

at least one signal attribute that is dependent upon the content of an image to be displayed responsive to the input video signal; and

at least one signal attribute that is not dependent upon the content of the image to be displayed.

16. The method of claim 15, wherein the first plurality of signal attributes comprises:

at least one signal attribute selected from the group consisting of sync height, color burst amplitude, composite peak amplitude, and luma peak amplitude.

17. The method of claim 15, wherein the input video signal is arranged in frames;

wherein the measuring step measures the first plurality of signal attributes for each frame;

and wherein the comparing, selecting, and modifying steps are performed for each frame, using the signal attribute measurements for that frame.

18. The method of claim 17, wherein the modifying step modifies the first gain value according to a gain update equation including a filter coefficient value, higher values of the filter coefficient value corresponding to greater changes in the first gain value

and further comprising:

after the selecting step, determining whether the modifying step is to increase or decrease the first gain value for a frame;

responsive to the modifying step decreasing the first gain value for a frame, storing the identity of the selected signal attribute for that frame;

responsive to determining, for a subsequent frame, that the modifying step is to increase the gain value:

retrieving the stored identity of the selected signal attribute;

responsive to the retrieved selected signal attribute corresponding to a signal attribute that is dependent upon the content of an image to be displayed responsive to the input video signal, modifying the first gain value using a first filter coefficient value; and

responsive to the retrieved selected signal attribute corresponding to a signal attribute that is not dependent upon the content of an image to be displayed responsive to the input video signal, modifying the first gain value using a second filter coefficient value, the second filter coefficient value being higher than the first filter coefficient value.

19. The method of claim 18, further comprising:

responsive to determining, for a subsequent frame, that the modifying step is to increase the first gain value and responsive to the retrieved selected signal attribute corresponding to a signal attribute that is dependent upon the content of an image to be displayed responsive to the input video signal, delaying the step of modifying the first gain value for a selected number of frames.

20. The method of claim 14, further comprising:

applying the first gain value to a signal corresponding to the input video signal.

21. The method of claim 20, further comprising:

after the applying step, separating the input video signal into component signals.

22. The method of claim 21, further comprising:

after the separating step, applying a second gain value to the component signals; and

modifying the second gain value according to the selected signal attribute measurement.

23. The method of claim 22, further comprising:

determining the first selected signal attribute from the first plurality of signal attributes;

selecting one of a second plurality of signal attributes, the second plurality of signal attributes including the first selected signal attribute;

wherein the selecting step excludes the first selected signal attribute from being selected.

24. The method of claim 22, wherein the first plurality of signal attributes comprises a luma signal peak amplitude;

and further comprising:

responsive to the first selected signal attribute being the luma signal peak amplitude, modifying the second gain value to a default value.

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